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(54) Title: METHODS AND COMPOSITIONS COMPRISING NON-PEPTIDE SMALL MOLECULES THAT SOLUBILIZE BETA AMYLOID PEPTIDE FIBER

(57) Abstract: The present invention comprises novel compositions and methods for the treatment of neurological diseases associated with beta amyloid peptide. In particular, the present invention is directed to Aβ fiber solubilization, for the treatment of amyloid-associated diseases such as Alzheimer's disease, and is described herein as being achieved by using small molecules binding to Aβ fiber. The present invention further comprises novel methods of designing and screening compositions for the treatment of neurological disease wherein the design aspect comprises the modeling of molecular scaffolds having optimal structural characteristics that enable the development of small molecule compositions of non-peptide nature having desirable solubilization effects on amyloid plaques. In one embodiment, the design of the compounds comprises a molecular structure with three chemical domains that include a melatonin-like domain, a nicotine-like domain and a peptide-like domain for binding to Aβ.

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